

## CLAIMS

1. A scattering medium measuring apparatus comprising N pieces (N represents an integer of 2 or more) of measuring modules with each having light irradiating means for irradiating a scattering medium with pulse light irradiated from a predetermined light  
5 irradiating position to measure internal information thereof non-invasively and at least one light detecting means for detecting light irradiated from the light irradiating means and propagating through the inside of the scattering medium at a predetermined light detecting  
10 position, wherein

N pieces of the light irradiating means corresponding, respectively, to the N pieces of measuring modules are adapted to irradiate the scattering medium with the pulse light successively at different irradiation timings, and wherein the light detecting means is  
15 adapted to detect light at a detection timing synchronized with the irradiation timing of the corresponding light irradiating means.

2. The scattering medium measuring apparatus according to claim 1, further comprising timing instruction means for instructing the light irradiating means and the light detecting means included in each  
20 of the N pieces of measuring modules, respectively, on the irradiation timing and the detection timing.

3. The scattering medium measuring apparatus according to claim 1 or 2, wherein the interval of the irradiation timing between two of the light irradiating means having successive irradiation timings is  
25 1μsec or less.

4. The scattering medium measuring apparatus according to

any of claims 1 to 3, wherein N pieces of light sources are installed to supply pulse light, respectively, to N pieces of the light irradiating means.

5           5. The scattering medium measuring apparatus according to any of claims 1 to 3, wherein M pieces (M represents an integer of 1 or more to less than N) of light sources are installed to supply pulse light to a plurality of light irradiating means among N pieces of the light irradiating means.

10           6. The scattering medium measuring apparatus according to any of claims 1 to 5, wherein part of a plurality of the light detecting means is shared by a plurality of the measuring modules.

15           7. A scattering medium measuring method which uses a measuring apparatus comprising N pieces (N represents an integer of 2 or more) of measuring modules with each having light irradiating means for irradiating a scattering medium with pulse light irradiated from a predetermined light irradiating position to measure internal information thereof non-invasively and at least one light detecting means for detecting light irradiated from the light irradiating means and propagating through the inside of the scattering medium at a  
20           predetermined light detecting position, wherein

            N pieces of the light irradiating means corresponding, respectively, to the N pieces of measuring modules are adapted to irradiate the scattering medium with the pulse light successively at different irradiation timings, and wherein the light detecting means is  
25           adapted to detect light at a detection timing synchronized with the irradiation timing of the corresponding light irradiating means.